

## Measurements of Thermodynamic Properties and Critical Parameters for the Propylene (R 1270) + R 32 Mixture

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The  $PvTx$  (pressure - volume - temperature - composition) properties and saturated liquid and vapor densities for binary Propylene (R1270:  $C_3H_6$ ) + R 32( $CH_2F_2$ ) mixtures were measured for 30 mass% R1270 + 70 mass% R 32 mixture, 50 mass% R1270 + 50 mass% R 32 mixture, and 70 mass% R1270 + 30 mass% R 32 mixture. With respect to  $PvTx$  properties, six different isochores including the critical isochore were measured for each of three compositions in the wide temperature, pressure and density range. Whereas for the saturated densities, thirteen, fourteen and ten data sets for 70 mass% R1270, 50 mass% R 1270, and 30 mass% R 1270, respectively, were obtained in the critical region. On the basis of these results, the critical temperatures, critical densities, and critical pressures for three compositions were determined experimentally, taking into consideration the meniscus disappearing level as well as the intensity of the critical opalescence. The composition dependence of the critical parameters for the R1270 + R32 mixture is discussed. From this experiment, it was confirmed that a nearly 30 mass% R 1270 + 70 mass% R 32 mixture becomes the azeotrope mixture.